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Conference Abstract

Streamlining Workflows for the Digitisation of New Acquisition Herbarium Specimens: Meeting Archive Service Accreditation Standards amid Mass Digitisation

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Abstract

The herbarium at the Royal Botanic Gardens, Kew*[1] (RBG Kew) houses around seven million pressed, dried plants, making it one of the largest herbaria globally. Acting as a reference library for plants, the collection is arranged according to the botanical tree of life and represents over 95% of vascular plant genera worldwide. It is actively used for scientific study and is contacted daily by taxonomists, conservationists, artists and historians interested in the collection's wide-ranging specimens.

In October 2021, funding was secured for a 4-year project to digitise the entire herbarium and fungarium collections. The goal is to create a complete, freely accessible online catalogue of these collections for researchers across the world, so they can be used in aiding efforts to combat urgent global challenges such as habitat degradation, climate change and human health.

Simultaneously, RBG Kew is seeking Archive Service Accreditation*[2], which uses United Kingdom sector standards, Spectrum*[3], as a benchmark for best practices. It encourages better management of collections, increased efficiency across operations and raises collections accessibility. Ultimately, it ensures collections are governed appropriately and

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provides a guide for staff to engage with collections sustainably, protecting them for the future.

These two initiatives underpin the importance of effectively curating images, digital records, and physical specimens, subsequently requiring RBG Kew to review and alter workflows to maintain and enhance the expanding dataset. In this paper, we discuss the workflow development for the digitisation and integration of our annual fifteen thousand to twenty thousand new accession specimens, accounting for the large-scale digitisation project, accreditation requirements and existing workflows.

After initial research and collaboration with key stakeholders, five pilot workflows were proposed to manage and digitise our newly acquired material. These workflows explored options including databasing post-curation and imaging after mounting; complete digitisation occurring post-curation and mounting; and using transaction numbers to track specimens between object entry and accessioning instead of barcodes. The most promising option, based on stakeholder feedback, was piloted and iterated over two years, ultimately becoming the collection operating procedure (COP) for new material entering the herbarium (Fig. 1).

The current COP has three fundamental elements:

1. Traceability of an object based on consignment information.
2. Integration with existing procedures and consistency between curation teams.
3. Definition of a specimen's legal status throughout the procedure.

For traceability, RBG Kew's new Integrated Collection Management System (ICMS), EarthCape*[4], means a transaction number can be added to each individual object. Upon arrival, a transaction record, containing all legal and transactional information, is created with a unique ID. This ID is printed onto a hanging label attached to each specimen bundle. The digitisation team is then able to assign a unique catalogue number to every specimen, database the label data into ICMS and link each object to the transaction record using the transaction ID, providing the ability to view all consignment information through a specimen record. The legal status for a specimen at this step is "Object Entry."

The specimens then enters the pre-existing workflow for newly acquired material, where the curatorial and research teams assess it for keeping, further identification, preparation and mounting. Since the specimens are not yet accessioned or under Kew's legal custodianship, any material can be disposed via destruction, gifting or returned to its owner without deaccessioning at this point.

Once mounted, the specimen returns to digitisation for imaging. At this point, the specimen is officially considered part of Kew's collection, and its legal status is updated to Accessioned or Acquired-Custodianship, based on Kew's legal ownership, recorded in the consignment. As a result of the pilot and subsequent workflow changes, there was additionally the requirement for flexibility to incorporate material from collections that have different and often more complex requirements to the standard museum material.

This culminated in adaptations to process material from the Millennium Seed Bank*[5], DNA & Tissue Bank*[6], Living Collection*[7], as well as outgoing and returning loans.

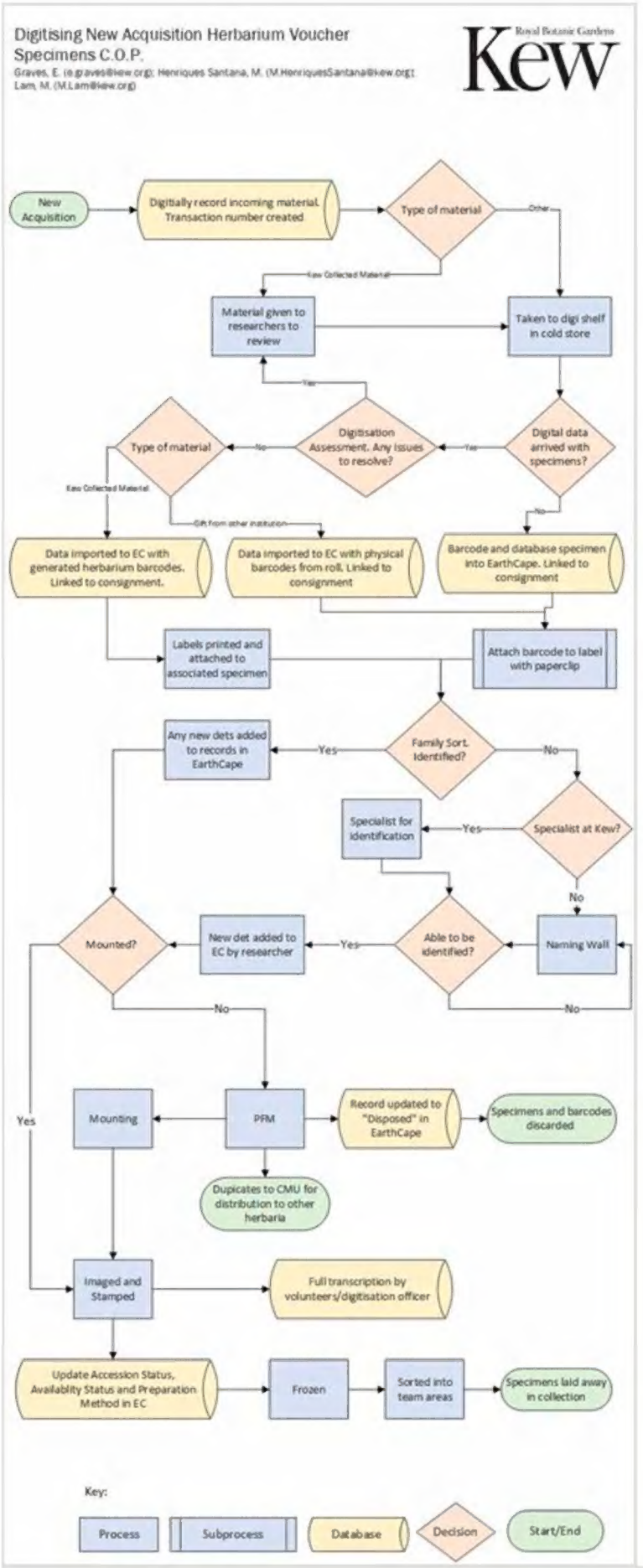

Figure 1.

RBG Kew new specimen acquisition workflow diagram. The green ovals represent the start and end points of the workflow. The red diamonds represent a decision point where a choice is evaluated. The blue rectangles represent a step in the process or an action that needs to be taken. The yellow symbol represents a data-intensive process.

Next steps for new acquisitions at RBG Kew involve developing procedures for inter-institutional digital data and physical specimen exchange, which are currently in the research and trial phase, as well as creating streamlined methods for digital data collection in the field.

Keywords

Spectrum, museum accreditation, data entry, image capture

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Conflicts of interest

The authors have declared that no competing interests exist.

Endnotes

*1 https://www.kew.org/

*2 https://www.nationalarchives.gov.uk/archives-sector/archive-service-accreditation/

*3 https://collectionstrust.org.uk/spectrum/

*4 https://earthcape.com/

*5 https://www.kew.org/science/collections-and-resources/research-facilities/millennium-seed-bank

*6 h ttps:// www.kew.org/science/collections-and-resources/collections/dna-and-tissue-bank

*7 https://www.kew.org/kew-gardens/plants